

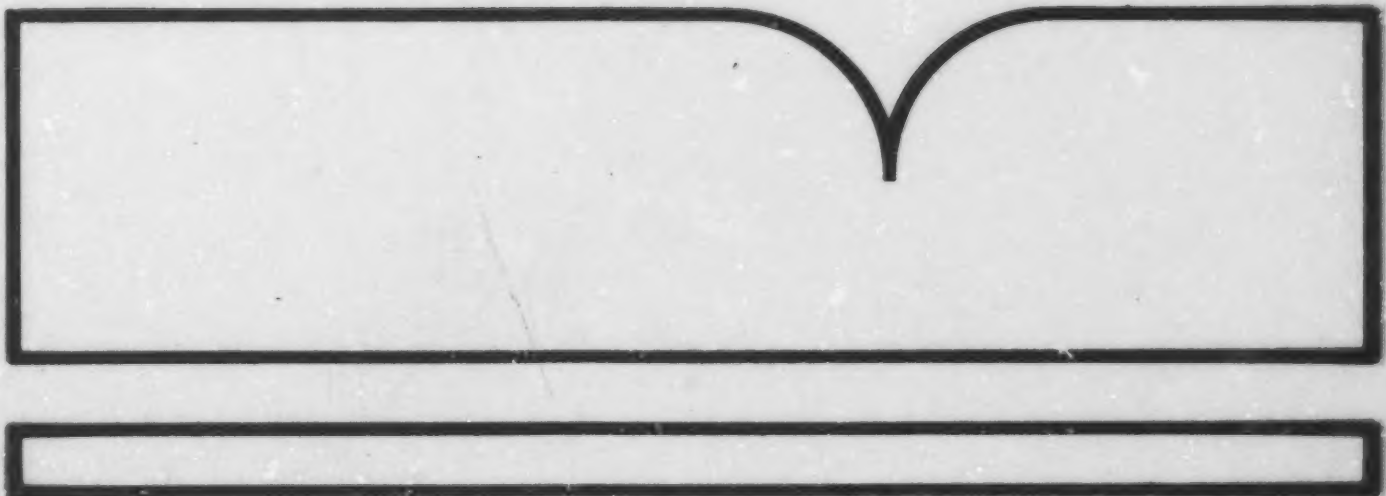
Institutional Options for Improved Water
Quality Management: Investigation
Research, and Other Activities

Battelle Human Affairs Research Centers
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**INSTITUTIONAL OPTIONS FOR IMPROVED WATER QUALITY MANAGEMENT:
INVESTIGATION, RESEARCH, AND OTHER ACTIVITIES**

Prepared for
U.S. Environmental Protection Agency
Region 10

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EXECUTIVE SUMMARY

This is the second of two reports analyzing institutional options for the improved management of water quality in Puget Sound. The first volume examines options for improving the coordination of policy direction. The present report examines options for improving the coordination of investigation, research, and other activities.

For purposes of these reports, Puget Sound water quality management is defined to reflect the stated objectives of the Federal Clean Water Act. It encompasses all governmental decisions and actions concerning the development and use of land and water resources of the Sound, including the control of pollutant discharges, that could affect (1) the chemical, physical, or biological integrity of Puget Sound; (2) the propagation and harvest of fish, shellfish, and wildlife in, on, or adjacent to the Sound; (3) recreation in and on the sound; and (4) human health. Further, any research or investigation that generates information relevant to these matters is also considered part of Puget Sound water quality management, even though such research or investigation might have other, more general purposes as well.

Following an introduction, Chapter 2 describes an analytical framework for developing and assessing approaches to activity coordination. This chapter defines activity coordination as the capacity of government agencies with capabilities to help address a particular public policy problem to agree on the planning and conduct of their activities and to keep each other apprised of the results. Chapter 2 also

explores the reasons for activity coordination, the candidates for participation, various levels and forms of coordination, and constraints on improvement.

Chapter 3 examines current institutional arrangements for coordinating water quality management activities on Puget Sound. First, it describes the means of coordinating investigation and research activities. These include the Puget Sound Water Quality Management Program, the State-EPA agreement, and a number of special-purpose arrangements among various clusters of agencies. This examination concludes that while EPA and WDOE coordinate their research and investigation activities satisfactorily with each other through the Puget Sound Water Quality Management Program, coordination involving other agencies needs improvement. Second, chapter 3 examines procedures for coordinating permitting and environmental review. This examination includes brief reviews of general coordination procedures established by statute: the National Environmental Policy Act, the State Environmental Policy Act, the Environmental Coordination Procedures Act, the Energy Facility Site Evaluation Council, and the Shoreline Management Act. In addition, it briefly examines three particular permitting processes: those for Section 301(h) waivers, Section 404 permits, and designation of open water disposal sites. This examination concludes that permitting and environmental review activities are generally well coordinated. Third, the chapter examines the coordination of program implementation activities--that is, the range of activities undertaken to address any given priority problem. Such coordination at present occurs primarily

through the SEA and through a variety of special-purpose mechanisms applicable to particular program implementation activities.

Use of either the SEA or special purpose devices to coordinate program implementation activities has its limitations. The SEA is not sufficient to coordinate such activities because a number of agencies do not participate, the SEA is extremely general, it is not appropriately organized to coordinate similar activities performed to address different problems, and as an annual negotiation it cannot facilitate coordination day-to-day. When established, special-purpose mechanisms can fill these gaps. But establishment of such arrangements requires intense interest on the part of at least one agency and a willingness to cooperate on the part of others. Absent these two conditions, necessary coordination may simply not occur.

Chapter 4 identifies and examines several institutional options for improving the coordination of investigation, research, and program implementation activities. Options for improving the coordination of investigation and research include the following:

1. Establishment of designated information offices in each agency.
2. Publication of research directories by each agency.
3. Establishment of a research clearinghouse.
4. Creation of an on-line data base.
5. Establishment of regular briefings on research plans and results.
6. Establishment of a research society.
7. Publication of research newsletters.
8. Establishment of an annual research agreement or memorandum of understanding.
9. Transfer to EPA of budgetary control over all federal research related to Puget Sound water quality.

The options for coordinating investigation and research activities are general-purpose, long-term arrangements involving a fixed set of agencies. In contrast, the need to coordinate program implementation activities often arises in the context of specific problems of finite duration. What is most often needed are simple means of getting a few key participants together to plan activities, share information, and clear up specific issues as they arise. The devices for coordinating such devices are generally well-known. Chapter 4 presents a checklist. The reason for poor coordination of program implementation activities is generally not ignorance of such options, but rather the unwillingness of one or more agencies to act. Therefore, Chapter 4 closes with a brief discussion of two possible "coordination-forcing devices:" a commission modeled on the State Conservation Commission and statutory coordination procedures.

Chapter 5 concludes that each of the three main categories of activities addressing Puget Sound water quality problems requires a somewhat different approach to coordination. Permitting and environmental review are generally well coordinated under existing statutory procedures and informal relationships. Therefore no particular improvements seem necessary at this time. Investigation and research activities suffer from excessive isolation among the agencies with regard to their research needs, plans, and results. Some significant change, such as the establishment of a research clearinghouse, seems appropriate. With respect to program implementation activities, the need for coordination varies from program to program. Because such needs are highly particular to the problem at hand, no all-embracing institutional fix seems

appropriate. Rather, program managers should make use of whatever limited devices are appropriate to their particular needs. Consideration should also be given to establishment of a coordination-forcing device.

1.0 INTRODUCTION

This is the second of two reports analyzing institutional options for the improved management of water quality in Puget Sound. For purposes of these reports, Puget Sound water quality management is defined to reflect the stated objectives of the Federal Clean Water Act. It encompasses all governmental decisions and actions concerning the development and use of land and water resources of the Sound, including the control of pollutant discharges, that could affect (1) the chemical, physical, or biological integrity of Puget Sound; (2) the propagation and harvest of fish, shellfish, and wildlife in, on, or adjacent to the Sound; (3) recreation in and on the sound; and (4) human health. Further, any research or investigation that generates information relevant to these matters is also considered part of Puget Sound water quality management, even though such research or investigation might have other, more general purposes as well.

The first volume examines options for improving the coordination of policy direction. The present report examines options for improving the coordination of investigation, research, and other activities. The two reports are intended to complement each other and should be read together, preferably beginning with the initial volume on policy direction. Similarly, the two sets of suggested options are complementary. If adopted together, the options for improving policy direction and the options for improving activity coordination should lead to more integrated management of Puget Sound water quality. However, both sets of options also have independent merit. Better coordination of activities can be useful even if, perhaps especially if, policy direction remains somewhat

fragmented. Therefore the two sets of options need not be adopted as a package.

Like the first report, the present one relies on a combination of theoretical and case study literature on implementation and interagency coordination; existing descriptions of Puget Sound water quality management institutions; previous analyses of regional water quality management programs, both in the Sound and in other areas; official documents; and discussions with involved officials.

This report is organized as follows:

Following this Introduction, Chapter 2 describes an analytical framework for developing and assessing approaches to activity coordination.

Chapter 3 examines the mechanisms presently used to coordinate several types of water quality management activities on Puget Sound: investigation and research, permitting and environmental review, and program implementation. For each type of activity, the various approaches used for coordination are described, and then the overall coordination of that activity is evaluated.

Chapter 4 presents options for the improved coordination of each type of activity. Each option is first described and then assessed in terms of possible barriers to implementation and overall advantages and disadvantages. Chapter 5 states conclusions.

2.0 THE LOGIC OF ACTIVITY COORDINATION

As in the case of policy coordination, poor coordination of activities is a recurring complaint about public programs. As involved officials themselves are apt to put it, each agency marches to a different drummer; the right hand doesn't know what the left hand is doing; and so on. Economists and policy analysts speak in terms of shortages, surpluses, and delays, or a lack of cost-effectiveness in program delivery. Whatever the formulation, the complaint is essentially the same: government agencies could act more effectively by acting in concert. Of course there is usually another side to such complaints, sometimes stated, sometimes not. The separation of activities among agencies itself serves a principle of efficiency: specialization based on division of labor. Moreover, a certain amount of redundancy can be effective in serving specialized needs and meeting peak demands. And as with policy coordination, the constraints to coordinating agency activities can be considerable. Like policy coordination, activity coordination should not be viewed as an end in itself, but rather as a response to particular needs.

This chapter develops a framework for identifying those situations in which the coordination of agency activities may be particularly useful and for developing options that address such needs. This framework is parallel but not identical to that developed for policy coordination in the companion report. It includes: (1) a definition of activity coordination, (2) reasons for activity coordination, (3) types of participants, (4) levels of coordination, (5) forms of coordination, and (6) constraints.

2.1 A DEFINITION

The companion volume to this report defines policy coordination as the capacity of government agencies with responsibilities or interests in a particular public policy problem to reach agreement on how that problem should be addressed. It further identifies four stages of policy formulation at which such agreement may be required: (1) in designating priority issues; (2) in determining what information is necessary to address each issue, through new research if necessary; (3) in developing a strategy to address the issue; and (4) in assessing the results of the strategy once implemented. After decisions are made at these various stages, they must be implemented through agency activities, as illustrated in Figure 2.1.

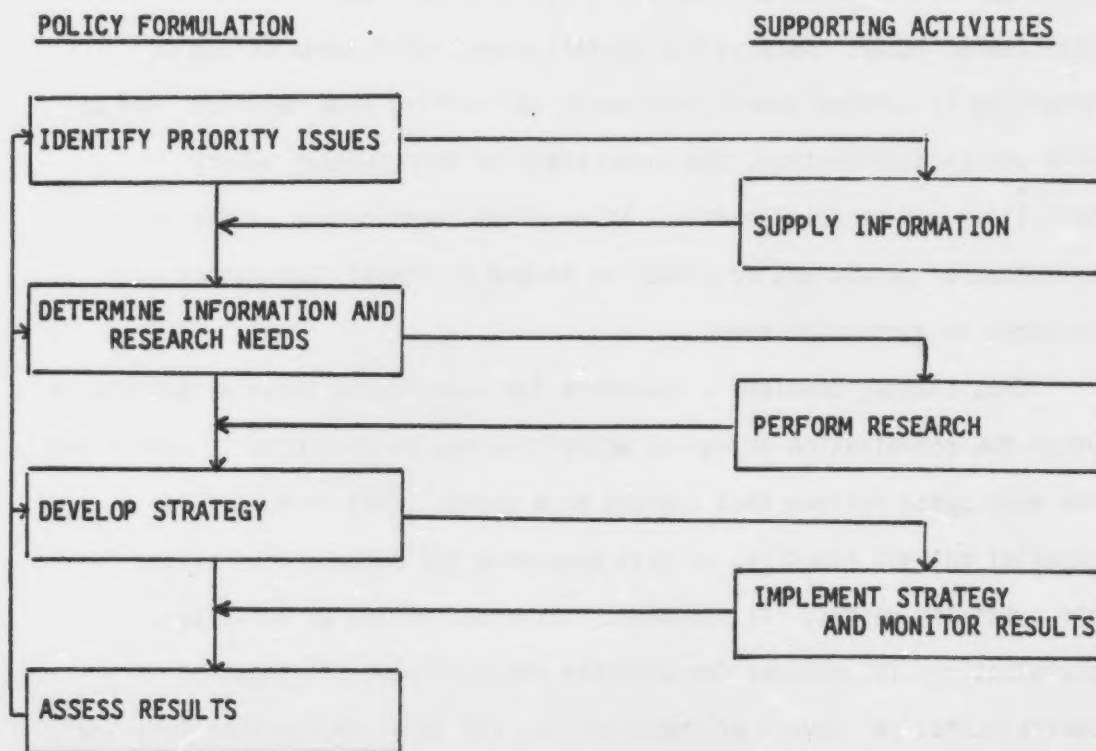


FIGURE 2.1 Activities in Support of Policy

Agencies must supply necessary information and perform research if needed; implement the strategy selected for addressing a particular policy issue (e.g., through a permitting program, through compliance actions, through the siting, construction, and operation of facilities); and monitor results. It is in the performance of such activities that the need for coordination may arise. Specifically, activity coordination can be defined as the capacity of government agencies with the capabilities to help address a particular public policy problem to agree on the planning and conduct of their activities and to keep each other apprised of the results. Ideally, coordinated activities support coordinated policy, but the coordination of activities can be useful in any event.

2.2 REASONS FOR COORDINATION

The need for agencies to coordinate their activities arises from the very structure of government itself. The division of labor among various agencies is typically imperfect. Gaps, overlaps, and ambiguities in the assignment of activities are pervasive. Absent coordination of activities, the collective performance of the various agencies in addressing a particular problem may suffer as a consequence. In particular, coordination may be needed for reasons of production efficiency, sequencing, responsiveness to policy, or consistency.

Production Efficiencies

Government agencies are in certain respects akin to private sector producers. The analogy is perhaps clearest for agencies operating facilities or performing research but applies also to the "production" of

permit decisions, enforcement actions, and other governmental outputs. Subject to statutory assignments of responsibility and due process obligations, production should occur as efficiently as possible: the agency capable of doing each job adequately at least cost should be the agency that does it. As a corollary, agencies should not duplicate each other's activities unless there is a statutory requirement or other very strong reason to do so. To allocate activities efficiently, and avoid duplication, agencies need to coordinate.

Sequencing

Activities undertaken to address a particular problem often need to follow a particular order. While some activities can be performed simultaneously, and others can be accomplished at any time during some period, still others absolutely must be completed before the next activity can proceed--e.g., collection of data must precede interpretation of the results. For complex projects, analysts often specify a "critical path" through the project that establishes which activities must be completed before subsequent activities can begin. In such instances, scheduling is complicated enough when a single agency performs all the activities. When several agencies are involved, they must agree on a common schedule and keep each other informed of progress along the way. Otherwise, intermediate outputs may not be ready when needed, leading to unnecessary delays.

Responsiveness to Policy

Often, an agency is charged with performing a particular activity in accordance with policy set by another agency. Such policy can be peripheral to the operating agency's own particular mission, interests, and expertise. Therefore the two agencies need to reach agreement on how the activity will be performed to ensure that it responds to policy needs.

Consistency

In many circumstances, neither efficiency nor policy requires that agencies perform activities in any particular way, but only that the activities are performed consistently across agencies or over time. Among the agencies, consistency may be necessary so that the various activities fit together--e.g., that data are gathered in the same format in which they will be used. With respect to the outside world, consistency is important for reasons of fairness. For example, it may be unreasonable to require a permit applicant to supply the identical information to two different agencies in entirely different ways.

2.3 PARTICIPANTS

In most instances, the groups of agencies that may need to coordinate their activities fall into one of three categories: agencies jointly engaged in the same activity to address a particular problem, agencies engaged in different activities to address the same problem, and agencies engaged in the same activity to address different problems. The reasons for coordination differ somewhat among these three groupings.

Same Activities, Same Problem Area

In this situation, two or more agencies jointly perform the same activity to address a given problem. For example, these agencies jointly conduct an investigation, commission research, construct a facility or issue a permit. In such cases the need for coordination is generally obvious, for reasons of production efficiency (to avoid gaps and overlaps in the work), sequencing (to ensure each agency's contribution is ready on time), and consistency (to ensure that the pieces fit together).

Different Activities, Same Problem Area

In this situation, each agency performs a different activity to address the same problem. For example, one agency might collect data pertinent to a problem, another agency might set standards based on the analysis, and yet another might enforce compliance with the standards. Again, these agencies may need to coordinate with each other to ensure proper sequencing, avoid unnecessary gaps and overlaps in effort, and operate with a consistent set of assumptions.

Same Activities, Different Problem Area

In this situation, a number of agencies perform similar activities to address a different problem. For example, several localities might be constructing similar facilities. Or each might be responsible for enforcing a particular set of regulations in each of their respective jurisdictions. In such cases, coordination primarily represents an opportunity for sharing knowledge and other "factors of production" to exploit economies of scale. If each agency is acting in response to a

common policy, coordination may also be necessary to ensure consistency and policy responsiveness.

2.4 LEVELS OF ACTIVITY COORDINATION

The possible levels of activity coordination are the same as the levels of policy coordination: information sharing, consultation, shared decisionmaking, and central control.

Information Sharing

Agencies can coordinate their activities simply by sharing appropriate information about their needs, plans, and results in addressing a particular problem. For activities that are simple and non-controversial, information sharing probably works reasonably well. For activities that are complex or contentious, information sharing alone is at best a cumbersome way of making necessary mutual adjustments in the planning and conduct of activities.

Consultation

For more complex problems, exchange of advice in a multi-party forum is probably necessary to ensure that each agency understands which will do what, where, when, and how in addressing the problem. Consultation is also the minimum level of coordination capable of producing compromises necessary when agencies disagree about how to proceed.

Shared Decisionmaking

Information sharing and consultation should work reasonably well when all that is required to secure agreement on how a problem will be addressed is each agency's knowledge of the other agency's plans and needs. When there is significant disagreement about the appropriate way to allocate responsibility and conduct activities, some form of shared decisionmaking that binds all participants may be necessary to force closure.

Central Control

When there is apt to be strong disagreement among agencies, central control by one policymaking agency may be the only way to coordinate activities. As in the case of policy coordination, however, central control of agency activities is elusive in practice.

2.5 FORMS OF ACTIVITY COORDINATION

The possible forms of activity coordination are also the same as the forms of policy coordination: ad hoc procedures, established procedures, interagency council, and super agency.

Ad Hoc Procedures

Ad hoc procedures are informal means of coordination, such as meetings, phone calls, exchanges of documents, or formation of a working group, initiated by one of the agencies. Such procedures are not triggered by a deadline or other circumstances specified in advance. And there are no fixed rules about how coordination will proceed. In contrast

to policy coordination, the coordination of agency activities often lends itself to the use of ad hoc procedures, for two reasons. First, at least some of the participants often have an incentive to seek activity coordination, so the fact that ad hoc procedures are not self-triggering is not a defect. Second, in many instances, the need for coordination is created by a one-of-a-kind problem. An ad hoc effort may be the only way to coordinate the activities surrounding it.

Established Procedures

On the other hand, certain types of problems recur with great regularity. Permitting and environmental review are prime examples. For such problems, both efficiency and consistency argue for a set of established coordination procedures that are automatically invoked when certain conditions are met (e.g., the filing of a permit application) and operate according to fixed rules. Established procedures can also facilitate coordination of certain problems on an ad hoc basis--e.g., a regular procedure for creating an ad hoc working group.

Interagency Council

An interagency council consists of representatives of various agencies that meet either regularly or in response to prescribed circumstances or both. Such a council provides a somewhat more formal means than established procedures for coordinating activities to address a recurring problem, such as the processing of permit applications. It may be the most natural vehicle for shared decisionmaking on such matters. An interagency council may also be a useful arrangement for information

sharing and consultation with respect to problems that are not yet well-defined and should be explored in wider ranging discussions. In order for an interagency council to be effective, its members must have a clear interest in sharing information, consulting, or reaching decisions--otherwise the council will devolve into a pointless discussion group.

Super Agency

A super agency consolidates into a single organization all agencies (or subunits of agencies) performing a set of related activities. Consideration should be given to creation of a super agency when the need for close coordination is high, the individual agencies resist coordination, and central control of separate agencies is otherwise impossible to achieve. However, such reorganizations are appropriate in only the most drastic situations.

2.6 CONSTRAINTS

Like all large organizations, government agencies prefer to act autonomously if at all possible. Typically, the agency's conception of how best to perform its dominant missions lies deeply embedded in its personnel system, budgetary process, and organizational culture. Most agencies are extremely reluctant to adjust internal priorities or procedures to suit the needs of another organization. As a corollary, they are also reluctant to undertake shared operations. When directed to do so, agencies tend to negotiate treaties with the other organizations involved so that each can operate independently. Efforts to improve the

coordination of activities among several agencies must overcome these tendencies by offering substantial incentives to induce participation.

3.0 PRESENT COORDINATION OF WATER QUALITY MANAGEMENT ACTIVITIES

As described in the companion report on policy direction, a number of federal, state, and local agencies have missions related to the management of Puget Sound water quality. These include: EPA and the Washington Department of Ecology (WDOE) (general regulatory responsibility for water quality protection), the Corps of Engineers (permitting of construction and dredging), the Food and Drug Administration (seafood contamination), the National Oceanic and Atmospheric Administration (research), the U.S. Coast Guard (permitting of construction, oil spill monitoring and clean-up), the U.S. Fish and Wildlife Service (habitat protection and endangered species), the Washington Department of Fisheries (fisheries resources, including aquaculture), the Washington Department of Game (fisheries resources), the Washington Department of Natural Resources (lands management and aquaculture), the Washington Department of Social and Health Services (public health protection, shellfish bed certification), tribal governments (fisheries resources), cities and counties (sewage treatment, land and shoreline use, public health protection), metropolitan municipal corporations (pollution abatement, sewage treatment), and port districts (harbor development).

For almost any given water quality management problem, several agencies are engaged in activities that may help address it. For reasons of efficiency, sequencing, policy responsiveness, and consistency, some coordination of these activities is often desirable. But at present, coordination of water quality management activities is highly uneven. Some types of activities are reasonably well coordinated. Others are not.

This chapter describes and evaluates the present means of coordinating several broad categories of water quality management activities: investigation and research, permitting and environmental review (both generally and with respect to Section 301(h) waivers, Section 404 permits, and designation of open water disposal sites); and program implementation.

3.1 INVESTIGATION AND RESEARCH

Investigation and research activities support water quality management by providing crucial information on the sources and impacts of pollution, in terms of both site specific data and underlying biological, physical, and chemical processes. Investigation and research results assist policymakers in identifying and defining a particular problem, in determining the need for yet additional information, and in designing sensible regulatory or other strategies for addressing the problem. Those agencies producing the investigation and research need to coordinate with regulatory and other policymaking agencies to ensure that the research actually addresses the policy problem and will be available on time and in usable form. Researchers also need to coordinate among themselves so that they provide information efficiently and consistently.

The coordination of research pertinent to the management of Puget Sound water quality occurs in a number of ways. The Puget Sound Water Quality Management Program provides a focal point for coordination of relevant research and investigation among EPA, WDOE, and DSHS. Other state agencies and local governments must rely on the State-EPA Agreement or on miscellaneous, special purpose arrangements for coordination with

EPA, WDOE, or among themselves. Coordination with NOAA, a major producer of relevant research results often intended for broader purposes than Puget Sound water quality management, occurs through NOAA's dissemination of research plans and results and through other internal means.

Puget Sound Water Quality Management Program

As described in the companion report on policy coordination, the Puget Sound Water Quality Management Program is an evolving, largely informal collaboration among EPA Region 10, WDOE, and DSHS. Subject to direction by a Steering Committee consisting of senior managers from the three agencies, staff from EPA and WDOE assigned to support the Program identify priority issues and then commission research and investigation aimed at achieving a better understanding of those issues.

To date, the Program has identified four key issues: bacterial contamination of shellfish beds; toxic contamination of urban/industrial embayments; longer term, cumulative effects of pollutant loadings on Puget Sound; and the overall structure for managing Puget Sound water quality. The Program has assembled about \$1,000,000 in budgetary resources (mostly from EPA Headquarters and the allocation of general state funds and federal grants by WDOE), which it has used to commission a set of research projects addressing these issues.

The Program appears to provide a very sharp focus for coordinating the investigation and research activities of EPA and WDOE that pertain to Puget Sound water quality. Program staff have also worked informally with research program personnel in other agencies such as NOAA to foster better fit between their activities and the Program's. There have been some

major success stories on this score: simultaneous samplings, joint studies, and the like. But as presently constituted the Program does not yet provide a means of regular, systematic coordination with the other agencies.

Other State and Local Agencies

The state agencies that do not participate in the Puget Sound Water Quality Management Program, as well as local agencies, must rely for coordination of research either on the State-EPA Agreement or on various special-purpose arrangements.

State-EPA Agreement. As described in the companion report on policy direction, the State-EPA Agreement (SEA) is a non-binding contract negotiated annually between EPA Region 10 and the State of Washington, as represented by WDOE, DSHS, and the Washington Department of Agriculture. The main agreement designates about a dozen "priority environmental problems," of which Puget Sound water quality is one. The more detailed Water Quality Program Management Document, appended to the SEA along with Program Documents for other media, describes supporting activities and the agencies that will perform them. The 1984 Program Document identifies research commitments undertaken in support of the Puget Sound Water Quality Management Program described above. For each of three priority issues--bacteriological contamination of shellfish beds, toxic contamination of urban/industrial embayments, and cumulative effects--the SEA lists several specific investigations, the period of performance, responsible agencies, WDOE staffing, and source of funds. The responsible agencies include EPA, WDOE, and several counties.

Thus the SEA provides a "memorial" of the year's Puget Sound Water Quality Management Program activities. As a vehicle for operationalizing these research commitments and publicizing agency responsibilities, it appears to be somewhat useful. But it is incomplete in several respects. First, other federal agencies--in particular NOAA--are not part of the SEA process. NOAA is in fact conducting research that will help address one or more of the three priority issues, but this research is not coordinated through the SEA because NOAA is not a party to the Agreement. Second, state agencies (other than WDOE and DSHS) and local agencies are not full participants either. The SEA does not give these agencies a voice in the selection or design of research activities by EPA or WDOE, much less NOAA. Third, the SEA is an annual, planning document. As presently negotiated, it does not provide a mechanism for sharing results and adjusting research activities during the course of the year.

Miscellaneous, Special-Purpose Arrangements

Clusters of agencies have periodically developed arrangements to coordinate research and investigation pertinent to a particular water quality program area. One example is the advisory committee assembled in connection with WDOE's Shellfish Protection Strategy. Prior to the formation of this committee, WDOE and DSHS coordinated fairly closely, but DNR and DF (which manage the beds) felt that they were excluded from the process and that their interests were not being taken into account. With formation of the advisory committee, which includes representatives from WDOE, DF, DNR, DSHS, the shellfish growers, and the planning and health departments of Pierce and Thurston counties, coordination has improved.

In particular, the committee has facilitated agreement on selection of shellfish bedding areas for intensive water quality surveys.

Another example of research coordination concerns the several "catch and consumption" studies being conducted around the Sound. The initial study was done by the Pierce County Health Department. It sought to determine what public health risks (if any) derive from the consumption of contaminated fish and shellfish caught by sport fishermen in Commencement Bay. WDOE then funded a similar, \$30,000 one-year study by DSHS with a broader geographic focus. While the DSHS work was underway, NOAA funded an even larger \$200,000, two-year study in the same subject area, to be conducted by University of Washington researchers. All three studies employ a similar survey instrument, which asks fishermen on docks around the Sound how often they fish and the quantity of fish they consume. At the working level, DSHS and UW researchers have cooperated in using similar survey instruments, assigning geographic areas to survey (albeit with some overlap), and entering the results into a common data base. In initiating the projects, however, DSHS and NOAA did not jointly decide on the need for such work, the total level of resources appropriate, or the allocation of responsibilities. Such coordination at the front-end probably would have resulted in a more efficient use of scarce research dollars.

In short, coordination of research and investigation outside the Puget Sound Water Quality Management Program and the SEA occurs either serendipitously (as in the case of the shellfish protection strategy) or incompletely (as in the case of the catch and consumption survey). No

mechanism regularly leads the agencies to confront the issue of whether coordination is necessary in a particular instance.

As a major sponsor and producer of research concerning chemical, physical, and biological properties of the Sound and man's impact on them, NOAA stands in a unique position. This work largely derives from NOAA's broad, national mission and the location of major NOAA facilities in Seattle, rather than from any specific Puget Sound-related mission. But because of this work, NOAA has much to contribute to the understanding of those agencies directly responsible for water quality management.

There is some perception within these other agencies that they and NOAA do not work as closely together in planning, conducting, and interpreting such research as they constructively could. For their part, NOAA officials note that they have issued an annual research plan since 1974; that they share basic information with other agencies, such as lists of ongoing studies and areas of interests; and that they have published upward of 100 research reports in bulk for broad distribution.

These ongoing efforts, plus the new NOAA Sandpoint Center, which is intended to maintain an "integrated awareness of NOAA involvement in Puget Sound," and WDOE's new research project tracking system, create the potential for close coordination. But centrifugal forces are powerful. Additional effort by individual officials in each agency may be needed to achieve close collaboration in practice.

3.2 PERMITTING AND ENVIRONMENTAL REVIEW

The issuance of permits and the review of proposed projects to assess their environmental impacts are major activities for most of the agencies

involved in Puget Sound water quality management. For any given application or project, one agency often has the direct responsibility for ruling on the permit application or issuing the environmental review. In this case, the lead agency needs to coordinate with other agencies having an interest in the application or project to ensure that their views are taken into account. In other instances, each agency may be responsible for considering the proposal independently--for example, by ruling separately on a series of permits. In this case, coordination is necessary to ensure that each agency's ruling is responsive to overall policy and treats the proposal consistently.

General Coordination Procedures

At present, there are five general sets of interagency procedures for the coordination of permitting and environmental review of proposed projects with potential environmental impacts on Puget Sound. They are the National Environmental Policy Act's EIS process, the State Environmental Policy Act's similar process, the Environmental Coordination Procedures Act's master permit process, the Energy Facility Site Evaluation Council, and the Shoreline Management permit procedures.

National Environmental Policy Act. The National Environmental Policy Act (NEPA) requires federal agencies to prepare an environmental impact statement (EIS) in connection with any federal action significantly affecting the quality of the human environment.¹ In this context federal action includes both the developmental activities of federal agencies (e.g., dredging by the Corps of Engineers) and federal regulatory approval of non-federal activities (e.g., issuance of a construction

permit by the U.S. Coast Guard). If either type of action may cause significant environmental impacts, an EIS is required. Under the Council on Environmental Quality's NEPA Guidelines, the preparation of an EIS in connection with an action affecting several agencies is supervised by a lead agency, with the participation of the other affected ("cooperating") agencies. Such participation, including preparation of analyses on matters in which the agency has particular expertise, as well as review work done by the other agencies, is a principal vehicle for coordination among federal agencies with respect to a federally sponsored or approved project's potential effects on Puget Sound water quality.

State Environmental Policy Act. The State Environmental Policy Act (SEPA) is Washington's version of NEPA, requiring preparation of an environmental impact statement in connection with state or local government actions having significant environmental effects.² As interpreted judicially, SEPA applies both to government-sponsored projects and to most other projects requiring state or local government permits, except for construction of a single dwelling unit. Just as NEPA facilitates coordination among federal agencies, SEPA is a vehicle for state agency coordination. Each draft EIS is filed with the Washington Department of Ecology, which then circulates it to all affected agencies for review and comments, which are incorporated into the final statement. The EIS and previous comments can then be used by reviewing agencies when the project sponsor subsequently applies for necessary state and local permits.

Environmental Coordination Procedures. A second set of established procedures that enables state agencies to coordinate their processing of

permits for a given project is the master permit process created by the Environmental Coordination Procedures Act of 1973.³ Before applying for permits, the developer of a project can first meet with the Natural Resources Coordination Council, chaired by the Director of WDOE, and also including the directors of DF, DG, DNR, and several other agencies. Often problems can be identified and addressed in this forum before the developer proceeds with formal permit applications. At its discretion, the applicant can also invoke the master permit process itself by first obtaining any necessary local permits and then submitting a single application for all state permits to DOE. The Department next circulates the application to all affected agencies and conducts a joint public hearing. The choice as to issuing or not issuing individual permits, however, rests with each issuing agency. Closely linked to the state's master permit process is the Environmental Permit and Management Tracking System (EPMATS), a computerized system of permit registration and tracking that enables agencies and applicants to determine the status of any given permit.

Energy Facility Site Evaluation Council. Construction of an energy facility in Washington State, including electrical generating facilities and oil and natural gas pipelines, must receive approval from the state's Energy Facility Site Evaluation Council.⁴ Represented on the Council are the state and local agencies whose individual approval would otherwise be required. Instead of approving the facility separately, however, the Council's members review the application for compliance with applicable state law, hold hearings, and collectively pass on the application. If the Council's decision is favorable, it recommends certification by the

Governor, with whom the final decision rests. Among other things, EFSEC is responsible for ensuring the equivalent of compliance with SEPA through environmental analysis by an independent consultant. Unlike coordination under SEPA itself or under the Environmental Coordination Procedures Act, EFSEC is a vehicle for collective decisionmaking with binding authority that supersedes the authority of all state and local agencies that might otherwise individually impose requirements on the construction of an energy facility.

Shoreline Management. The fifth statutory mechanism for interagency coordination is that established by the Shoreline Management Act of 1971.⁵ The Act governs most nonresidential uses of submerged lands, tidelands, and shorelands within 200 feet of the shoreline. Coordination occurs at several points in the Act's implementation. Initially, city and county governments prepare a shoreline master program, in essence a land use plan. WDOE receives the draft program, solicits comments from federal and state agencies, and then approves or disapproves the program. This shoreline master program development phase is now substantially complete. The city or county then administers its plan by requiring substantial development permits for each proposed shoreline development. Following a hearing and the local government's decision, the Department of Ecology, the Attorney General, the applicant or any affected party may appeal to the Shorelines Hearings Board. The 6-member board consists of 3 members from the Pollution Control Board, 1 representative from the Commissioner of Public Lands, 1 representative from the Association of Washington Cities, and 1 representative from the Washington Association of Counties. Hearings Board decisions in turn may be appealed to the courts.

Summary. These five sets of established procedures for the coordination of permitting and environmental review generally function reasonably well. Project proponents still claim that too many permits are required, that processing the applications takes too long, and that agencies sometimes adopt mutually inconsistent positions. But given the diverse statutory responsibilities of the permitting agencies, the system seems about as well-coordinated as can reasonably be expected.

Section 301(h) Waivers⁶

The federal Clean Water Act generally requires publicly owned sewage treatment works (POTWs) to provide for the application of the "best practicable waste treatment technology," which has been defined as secondary treatment. However, Section 301(h) of the Act allows POTWs discharging into marine and estuarine waters to obtain a waiver of this requirement from EPA if the state concurs and the applicant can meet certain criteria.⁷ In Washington, 22 units of local government, all discharging into the Sound or the Strait of Juan de Fuca, have applied for 31 Section 301(h) waivers.

Before issuing a waiver, EPA must obtain the concurrence of Washington State, which is based on review by WDOE. In particular, WDOE determines whether issuance of the waiver would be consistent with water quality standards and the state's coastal zone management plan, and also whether any other discharger would have to increase treatment. EPA also seeks review by the regional offices of the National Marine Fisheries Service and the U.S. Fish and Wildlife Service to ensure compliance with the Endangered Species Act. In addition, the Washington Department of

Fisheries and the Washington Department of Game comment on the application with regard to possible impacts on fisheries resources.

If the proposal entails new construction, for example by change of outfall location, still other agencies participate. The Washington Departments of Fish and Game would have to issue a hydraulic project approval; the Washington Department of Natural Resources might raise its rent for use of the submerged lands; the Corps of Engineers would determine whether navigation or anchorage would be substantially impaired; and the cognizant unit of local government would have to issue a shoreline substantial development permit. Because SEPA applies, an EIS might be required.

Processing of the Section 301(h) waiver applications has just begun, with EPA having sent only the first application to WDOE for certification. At present WDOE is constrained by legal uncertainty concerning its authority to waive secondary treatment under Washington State law. Therefore, it is too early to assess the coordination of Section 301(h) waiver processing in practice. Because the review process is well-defined, there is little reason to anticipate major problems. However, there is some indication that some of the state agencies such as DNR would have preferred to participate earlier.

Section 404 Permits⁸

Section 404 of the Clean Water Act allows disposal of dredged or fill materials in waters of the United States only in compliance with a permit from the Army Corps of Engineers.⁹ Disposal of such material is common on Puget Sound. As in the case of Section 301(h) waivers, the

responsibilities and interests of a number of agencies are implicated in the issuance of Section 404 permits.

As issuer of the permit, the Corps of Engineers serves as lead agency, and as such coordinates the review process with other agencies. EPA provides general review for compliance with Clean Water Act standards. The National Marine Fisheries Service and the U.S. Fish and Wildlife Service review applications for compliance with the Endangered Species Act. WDOE reviews applications to ensure compliance with water quality standards and consistency with the coastal zone management plan. In addition WDOE sends applications to other state agencies for their review, and takes their comments into account in deciding whether to support the application. These agencies include the Departments of Fisheries, Game, Natural Resources, Social and Health Services, and Transportation, as well as the Parks and Recreation Commission and the Office of Archaeology and Historic Preservation. Hydraulic project approval must be obtained from the Departments of Fisheries and Game. Other agencies may only state objections for consideration by WDOE.

Upon issuance of the Section 404 permit by the Corps, lease of the disposal site itself must be obtained from the Washington Department of Natural Resources. In addition, a shoreline substantial development permit must be obtained from the local unit of government with jurisdiction over the disposal area.

While Section 404 permitting appears to run fairly smoothly, coordination could be improved in at least two respects. First, reviewing agencies sometimes need more information than the Corps requires from applicants about the materials proposed for disposal. Either the

additional information must be obtained from the applicant, causing delay, or the permit must be processed using less than complete information. The Corps and the other agencies may need to reach agreement on expanding the range of required information in initial permit applications. Second, local shoreline management permitting may be unduly cumbersome and duplicative of parts of the Section 404 process itself. The federal and state agencies, together with city and county governments, may need to develop a more streamlined process that eliminates unnecessary overlaps.

Designation of Open Water Disposal Sites¹⁰

The Washington Department of Natural Resources (WDNR) is responsible for managing the submerged lands of Puget Sound. As part of this responsibility, WDNR selects, establishes, and manages sites in the Sound for open water disposal of material dredged under Section 404 permits. Because this activity impinges on the interests of several other agencies, WDNR coordinates closely with them.

The principal vehicle for this coordination is the Open Water Disposal Site Evaluation Committee, chaired by WDNR. The Committee's other members represent four federal and three state agencies: the Corps of Engineers, Seattle District; EPA Region 10; the National Marine Fisheries Service; the U.S. Fish and Wildlife Service; and the Washington Departments of Ecology, Fisheries, and Game. The Committee serves as an interagency council through which WDNR seeks consultation on the designation of open water disposal sites.

The ultimate decision on designation of sites rests with WDNR. However, WDNR must obtain two approvals before it can make use of such a

site. Specifically, it must obtain a shoreline substantial development permit from the local government with jurisdiction over the area, subject to review by the Shorelands Division of WDOE. And it must secure a hydraulic project approval from the Department of Fisheries or Game.

The process for disposal site designation appears to function reasonably well in expeditiously designating sites and taking diverse agency perspectives into account. However, this process of designating sites operates in some isolation from the Section 404 disposal permitting process. As a result, all disposal sites are open to disposal of all materials for which a permit is obtained. From a water quality standpoint, a more effective approach might be to designate particular sites as suitable for particular materials. But this approach would require greater integration between the site designation process and the permitting process.

3.3 PROGRAM IMPLEMENTATION

Program implementation refers to the entire range of activities undertaken to address a priority water quality problem area. Consider for example one such problem area identified in the 1984 State-EPA Agreement, Commencement Bay. Activities planned or underway include monitoring, NPDES permitting, implementation of an industrial pretreatment program, compliance inspections, issuance of enforcement orders, Superfund planning, and implementation of nonpoint source controls. Similar arrays of program implementation activities are undertaken to address other priority problems around the Sound. The need for the agencies performing

these activities to coordinate with each other may arise in any of the three situations described in Section 2.3 above.

The first situation occurs when different agencies are jointly engaged in the same activity to address a given problem. For example, WDOE and local government are implementing nonpoint source controls for Commencement Bay. Such agencies need to coordinate with each other to ensure that the various localities' controls are responsive to WDOE's Urban Runoff Management Plan and other guidance and are mutually consistent with each other. There may also be production efficiencies in sharing information if one locality has developed experience that others can use.

The second situation occurs when different agencies are engaged in different activities to address a given problem. For example, WDOE monitors ambient water quality while EPA promulgates effluent guidelines. Such agencies need to coordinate with each other to exploit production efficiencies (e.g., in obtaining pertinent information about the problem), to ensure that activities are performed in the proper sequence (e.g., inspections must precede enforcement), and to establish consistency between activities (e.g., between monitoring criteria and effluent guidelines).

The third situation occurs when different agencies are engaged in the same activity to address a different problem area. For example, while Commencement Bay area localities are implementing nonpoint source controls, so are localities in other priority problem areas, such as the Duwamish River. Such agencies can perform these activities more efficiently by sharing their knowledge and perhaps other resources with

each other. They also need to coordinate their activities with EPA and WDOE to ensure consistency and policy responsiveness.

At present, the State-EPA Agreement is the main established procedure for consultation among agencies to coordinate such program implementation activities. The SEA's Water Quality Management Program Plan sets out in tabular form the agencies responsible for performing each program activity or task, and sometimes specifies a schedule as well. The SEA provides a useful framework for joint planning of program implementation activities. But as in the case of investigation and research, it is lacking in several respects as mechanism for coordinating these activities.

First, a number of federal agencies do not participate in the SEA at all: in particular NOAA, the Corps of Engineers, and the Coast Guard. State and local agencies other than WDOE and DSHS do participate to a limited degree but not as full parties to the SEA itself. Therefore the SEA cannot serve to secure agreement on the planning and conduct of activities involving these excluded agencies.

Second, the SEA is an extremely spare document. It allocates responsibilities for activities and schedules a few key dates, but it does not facilitate coordination at any but the most general level of detail.

Third, because of the way the SEA is organized--by problem, subdivided by activity--the SEA does not necessarily assist in the coordination of agencies performing similar activities to address different problems, such as the localities that are developing nonpoint pollution control strategies for their respective jurisdictions. Only to the extent that such activities are supported by federal grants under

Clean Water Act Sections 106, 205(j), or 208 does the SEA process serve to allocate resources among them, and thus in a limited way, coordinate them.

Fourth, because negotiation of the SEA is an annual planning exercise, it cannot assist in the day-to-day coordination of the conduct of activities as they proceed.

In short, the State-EPA Agreement provides a useful core of activity coordination on which to build. But additional measures may be useful in filling some of these gaps. Not surprisingly, therefore, the agencies have devised a variety of special-purpose mechanisms to coordinate particular program implementation activities. One example is the ad hoc coordination that occurs among the agencies involved in Superfund activities pertaining to Commencement Bay: WDOE, EPA, and the Tacoma-Pierce County Health Departments. Except for some differences with EPA Headquarters over scheduling and emphasis on remedial action, this group has functioned fairly smoothly--all the more so since an EPA/WDOE agreement explicitly delegated leadership of the project to WDOE. Certain tasks, such as community relations, are specifically delegated to the Tacoma-Pierce County Health Department.

A second example is an informal understanding between DSHS and WDOE concerning the impact of sewage treatment plants on shellfish beds. DSHS will comment on the WDOE design manual for sewage treatment plants, now undergoing its biennial revision. DSHS and WDOE will then jointly review the comments and explore ways of mitigating impacts on shellfish.

Yet a third example is an interagency advisory committee on geoduck management. When the geoduck beds were discovered a decade and a half ago, they had been inadvertently contaminated by municipal discharge. DF,

which became responsible for managing the clams themselves, lacked regulatory power to address this problem. Therefore it sought the cooperation of DNR, which has jurisdiction over the beds, as well as WDOE and DSHS. DF's initiative eventually led to formation of an interagency advisory committee and the contamination has been minimized.

Still a fourth example concerns shoreline permitting for aquaculture. DF and DNR together concluded that such permits had become unreasonably difficult to obtain. They approached WDOE, the lead state agency for shoreline management, which agreed to amend its regulations to allow greater cultivation. WDOE also called on local authorities to amend their regulations to conform with the new state policy. In addition, WDOE granted funds to DNR and DF to revise and publish management plans for aquaculture.

Establishment of such special-purpose coordination mechanisms seems to require a combination of intense interest on the part of at least one agency and at least a willingness to cooperate on the part of others. Absent these two conditions, necessary coordination may simply not occur. Instances cited by officials interviewed for this report include dredge spoils management (where the agencies reportedly lack available staff to coordinate) and shoreline permitting (where state interest in resources development conflicts with local interest in preserving views). In such instances, some action-forcing device may be necessary if coordination is to occur.

4.0 OPTIONS FOR IMPROVED COORDINATION

Coordination of permitting and environmental review activities now appears relatively effective. Coordination of investigation, research, and program implementation activities seems somewhat less satisfactory. Accordingly, this chapter concentrates on examining options to improve the coordination of these latter categories of activities.

4.1 INVESTIGATION AND RESEARCH

As discussed in Section 3.1, EPA and WDOE coordinate their research and investigation activities with considerable effectiveness through the Puget Sound Water Quality Management Program. Beyond this cooperation, however, the coordination of research suffers in several important respects. First, while the SEA plays a constructive role in coordinating the planning of research among EPA, WDOE, and the state agencies, these other agencies do not participate actively enough in the SEA process to have a great deal of influence on research priorities. Second, the SEA itself does not provide a means for sharing research results among these agencies. Third, there is no established mechanism for coordinating research plans and disseminating results among the various agencies. Each of the options examined here is aimed at addressing one or more of these deficiencies. Each option is briefly described, any major barriers to implementation noted, and overall advantages and disadvantages stated.

Establishment of Designated Information Offices

Each agency performing or sponsoring investigation or research could designate an office or individual as responsible for providing research information to other agencies, as is done by the WDOE/EPA project-tracking system. This office would maintain an index of all research projects proposed, completed, or underway; a compilation of work statements and project schedules; interim drafts; and final reports. Any of this information could be made available to other agencies on request, if necessary at a fee to cover retrieval and copying costs.

Implementation Barriers. The main difficulty is inducing the participation of agencies whose main interest lies in conducting their own research and which care little about what others are doing.

Evaluation. Designation of such offices is probably the simplest way of enabling each agency to be informed about disseminating the results, even in exchange for better knowledge of the other agencies' research plans and results. Of course such information sharing does not directly facilitate joint planning of research. But it allows each agency to take advantage of what the others are doing, and to make adjustments in its own research plans accordingly.

Publication of Research Directories

A further step would be the regular publication of research directories by each agency, as was done by the Oceanographic Commission. Directories would list all projects proposed, underway, or completed; briefly describe the scope of work; state the period of performance; and identify the principal staff member responsible for directing the

project. A more ambitious version could also contain abstracts of results. Each agency's directory would be distributed to all other agencies involved in water quality management.

Implementation Barriers. The added costs of publishing and distributing such directories at close enough intervals to be useful (perhaps every six months) would make them a more expensive proposition than designated information offices. Participation might be correspondingly more difficult to elicit.

Evaluation. Directories would probably be more useful than designated offices to most agencies wanting to stay abreast of other agencies' research, because the directories would reduce the need to make individual inquiries.

Establishment of a Research Clearinghouse

A more comprehensive means of sharing information would be to establish a research clearinghouse. Such a clearinghouse would function as a new office within one of the existing agencies, probably WDOE, EPA, or NOAA. It would regularly obtain from each agency lists of proposed, ongoing, and completed research projects; work scopes and schedules; interim drafts; and final reports. The clearinghouse would publish an integrated directory on the model of the single-agency directories suggested as option 2, indexed by agency, subject, and author. It would also maintain a library of draft and final reports, available to other agencies on request. In addition, it might create specialized data bases using the various research results.

Implementation Barriers. A clearinghouse could not replace the efforts of individual agencies to compile information on their own research. Indeed it would be heavily dependent on just such efforts. The challenge again would be to elicit the necessary cooperation. One might also expect a "dog in the manger phenomenon:" each agency may be reluctant to take on this function itself, because of the added administrative and economic burden; but each agency may also oppose assignment of the clearinghouse role to another agency, for fear of losing control or influence.

Evaluation. Such a clearinghouse would provide the most comprehensive means of sharing information about research. It could be correspondingly expensive.

Creation of an On-line Data Base

As an additional, ambitious feature, the research clearinghouse could maintain an on-line data base. Such a data base could take either of two forms. In one version, it could simply be a computerized edition of the comprehensive directory, complete with search routines for use by each agency via its own computer terminal. In another version, clearinghouse personnel might extract research results and integrate across projects to create data files on particular subjects of concern such as the impacts of specific pollutants. Again each agency would have access.

Implementation Barriers. In principle, an on-line data base should be no more difficult to implement than establishment of a non-computerized clearinghouse. Similarly, it would face the same barriers: the reluctance of each agency to take on the mission itself or agree to its

assignment elsewhere, the unwillingness of agencies to share costs, and their desire to control information about their own research plans and results, especially interim results.

Evaluation. Such a system could be made extremely convenient and useful, but cost is potentially a major constraint, especially sharing costs among the agencies.

Establishment of Regular Briefings on Research Plans and Results

The Puget Sound Water Quality Management Program, each of the three NOAA subunits, and any other interested federal or state agencies could meet regularly to brief each other on research plans and results. Such briefings could be held monthly, or perhaps quarterly. Each agency would make formal presentations of research plans, interim results of ongoing projects, and final results of completed projects. Questions and answers would follow.

Implementation Barriers. As with the other options, the possible reluctance of the agencies to participate would be the main implementation barrier. Even if agreement on participation could be secured in principle, ensuring that each agency devoted the necessary attention to provide complete and detailed presentations could be an additional difficulty.

Evaluation. Regular briefings could be extremely valuable, possibly even more so than research directories or clearinghouses in that they would encourage face-to-face contact and exchange of ideas.

Establishment of a Research Society

Another option for improved information sharing is the creation of a Puget Sound Water Quality Research Society. The Society could be sponsored by EPA, NOAA, and WDOE to provide a forum for the exchange of information among the scientific community on Puget Sound. It might be funded as a Sea Grant project. Current interaction among scientists and researchers is limited to specific projects or attempts to solve current problems; the Society would provide the opportunity for discussion and sharing of data across a wider range of concerns.

Implementation Barriers. To promote the free exchange of ideas, such a research society should be kept institutionally separate from any of the sponsoring agencies. Such independence might also be an attraction for the sponsoring agencies' participation. But some means would have to be devised to impart a sense of urgency to the enterprise.

Evaluation. A Puget Sound Research Society would be a useful supplement to the options suggested for coordinating agency research activities. While as an extra-governmental body, it would not be a substitute for interagency mechanisms, it could help create a sense of shared purpose among individual officials and researchers and thus facilitate the establishment of such mechanisms.

Publication of Research Newsletters

Newsletters also offer a vehicle for the sharing of information about water quality-related research on the Sound. The Puget Sound Research Society could publish a newsletter as a supplement to its meetings. Other newsletters might be organized by agency, or around a specific set of

research concerns. Newsletters could disseminate information about research plans in a livelier and more detailed fashion than research directories. In the case of newsletters edited by staff from several agencies, the process of publication itself could stimulate interchange.

Implementation Barriers. The main difficulty in publishing newsletters is obtaining the necessary resources; both dollars and personnel are short. If participation from enough different agencies could be secured, the cost to each individual agency might be reasonable; but the agencies are notoriously reluctant to pool resources.

Evaluation. Like a research society, newsletters would not substitute for more direct forms of coordination, but newsletters would help create a shared understanding of work underway.

Establishment of an Annual Agreement with NOAA

The Puget Sound Water Quality Management Program could negotiate an annual agreement or memorandum of understanding with NOAA and its subunits, identifying research projects and expected results pertinent to Puget Sound water quality. Modeled on the SEA, this agreement could be negotiated by Program staff and ratified by the Steering Committee. Alternatively, such an agreement could be negotiated by WDOE on behalf of the state.

Implementation Barriers. The major difficulty in establishing such an annual process would be in inducing the agencies to participate. Autonomy in the allocation of research resources is a very powerful organizational norm. Participation might be obtained in exchange for a greater level of research resources, but not necessarily: most agencies

prefer autonomy in allocating their budget, even at the cost of a smaller budget. Moreover, bigger budgets seem unlikely for the foreseeable future. Participation could be required by statute or executive order, but obtaining such legislation would itself be difficult. And the process is unlikely to work well unless the agencies are willing, preferably enthusiastic, participants.

Evaluation. An annual agreement would probably be the best means for the efficient allocation of research resources among the agencies. But it would not directly facilitate the sharing of research results. And it would be difficult to implement.

Designation of EPA as Allocator of All Federal Research Related to Puget Sound Water Quality

At least in logic, greater coherence could be imposed on federal research activities if EPA were to control all investigation, research, and projects related to Puget Sound water quality. For example, EPA could be assigned the power of budgetary approval for such activities. Or water quality-related functions of the other federal agencies could be merged into EPA.

Implementation Barriers. In fact such forms of control would be extremely difficult to implement. The divergent Congressional committee jurisdiction over the various agencies alone would effectively foreclose the necessary legislation. Moreover, even if statutory authority could be obtained, the non-parallel internal organization of EPA and the other agencies would greatly complicate any such effort--e.g., EPA's regional organization versus NOAA's different, limited regional structure.

Evaluation. If central allocation could be implemented, it would go far toward more rational expenditure of federal research funds related to Puget Sound water quality. But this option would be very difficult to implement. Moreover, while it could rationalize water quality-related research it could tend to skew resources away from research related to resource protection and enhancement.

4.2 PROGRAM IMPLEMENTATION

For purposes of coordination, program implementation activities differ from research and investigation activities. The agencies that perform research and the agencies that use research results are well known. The need for coordination among them is general and stable over time. Thus the options for coordinating research and investigation activities presented in Section 4.1 are general-purpose, long-term arrangements, involving a fixed set of agencies. In contrast, the need to coordinate program implementation activities often arises in the context of numerous, specific problems. Any one problem may involve only a small subset of the agencies. And often it will have a limited duration. As a consequence, the creation of formal institutions to coordinate such activities is generally inappropriate. They will quickly atrophy because they are not workable. What is most often needed are simple means of getting a few key participants together to plan activities, share information, and clear up specific issues as they arise.

The devices for coordinating activities in this fashion are generally well-known. Some examples were presented in Section 3.3 above. As a checklist, a number of the more common devices are presented in the

sections that follow, grouped accordingly to the three situations giving rise to the need for coordination discussed in Section 3.3. All of these options assume a shared interest on the part of the involved agencies in improving the coordination of program activities. As suggested in Section 3.3, however, the reason for poor coordination is not ignorance of appropriate mechanisms, but the unwillingness of one or more agency to act. Realistically, little can be done to force unwilling agencies to get together. But consideration should perhaps be given to establishing procedural devices that raise the cost of noncooperation. Options of this sort are in the fourth section below.

Agencies Performing the Same Activity to Address the Same Problem Area

Sometimes two or more agencies are jointly engaged in a particular activity to address a given problem, as when EPA and the City of Tacoma together implement an industrial pretreatment program to control industrial discharges to Tacoma's sewage treatment plant. Generally the need for coordination in this situation is so obvious and the relationship of involved personnel so close that formal coordination procedures are unnecessary. For especially lengthy, large, or complex projects, however, the following options should be considered.

Clearly designate a project leader from each agency. Designation of one individual who can speak authoritatively for his or her agency with respect to a particular project is extremely useful. Together these individuals can constitute an informal project committee that can consult as necessary to iron out specific problems. Designation of project

leaders seems to be done fairly routinely, but the presumption should be universal.

Negotiate memorandum of understanding. For large, complex, or lengthy projects a simple document specifying operating assumptions, setting a schedule, and allocating responsibilities would be useful. For agencies that have not worked together in the past, negotiation of such an agreement is a good way of familiarizing themselves with each other. For agencies that do work closely together, such an agreement can reveal differences that might be overlooked by the tendency to take certain assumptions for granted. Such MOUs should be updated regularly to take account of new information and revised plans.

Hold regular meetings. Regular meetings between involved personnel, even without a fixed agenda, can provide a useful means of sharing perspectives on the project that might not otherwise surface in day-to-day contacts. Because such meetings can become pointless if there is really no need to share information, the group should regularly determine whether it should continue.

Agencies Performing Different Activities to Address the Same Problem Area

Two or more agencies may also be engaged in different activities to address the same problem, as when Metro monitors ambient water quality while WDOE and localities implement nonpoint source controls. In such instances the agencies may have less opportunity to coordinate informally, despite the benefits of doing so. Therefore, one or more of the following options may be especially useful.

Establish problem area plans. All agencies performing activities to address a particular problem could agree on a joint plan, to be revised annually or at another regular interval. Such a plan would constitute a much more detailed statement of schedules and responsibilities than those typically contained in the SEA Water Quality Program Management document.

Publish an activities report. EPA or WDOE could publish a monthly report of all activities underway to address the problem. If kept brief and informal, such a report can be informative and useful without absorbing undue resources or becoming an end in itself.

Establish an interagency committee. For the limited purpose of coordinating activities that address a particular problem, an interagency committee can be useful. It should be kept as lean as possible, with no staff assigned specifically to the committee and informal procedures. General information sharing meetings can be held, but meetings designed to foster decisions on a particular issue are preferable.

Agencies Performing the Same Activity to Address Different Problem Areas

Several agencies may be independently engaged in the same activity to address different problem areas, as when a number of cities develop nonpoint source control programs. Coordination of such activities is particularly unlikely to happen fortuitously. Any of the following options could be helpful.

Establish an interagency committee. Such agencies, perhaps with EPA or WDOE acting as a catalyst could form a group that meets regularly to discuss their respective experiences and address problems of mutual concern.

Publish a newsletter. As an alternative, such a group of agencies could jointly publish a newsletter to keep themselves informed of each other's activities.

Action-Forcing Devices

Attempts to establish a means of coordination when one or more agencies opposes it ordinarily fail. However, when an agency is merely indifferent or mildly unenthusiastic, procedural devices may perhaps be used to facilitate coordination. Two possible options in this regard, both requiring legislation, are establishment of a water quality coordination commission and creation of statutory procedures to invoke rights of coordination.

Establish a commission. A Puget Sound water quality coordination commission could be established along the lines of the State Conservation Commission. It would consist of three independent commissioners appointed by the Governor and, ex officio, the directors of all state agencies involved in Puget Sound water quality management. Upon petition from any state or local agency, the commission would determine the need for coordination with respect to a particular set of activities. Upon an affirmative finding, the commission would determine which agencies should participate and direct each to designate a staff member to serve on a coordinating committee. The committee would be required to report to the commission on specific steps agreed to by the committee's members to address the coordination problem stated in the petition. The danger of such a system would be over-bureaucratization of situations calling for simplicity and flexibility. But such an approach could be tried

experimentally for a short period of time--i.e., the legislation could have a prompt sunset provision--and then extended if shown to be effective.

Create statutory procedures. Similar procedures could be created without establishing a separate commission to oversee their implementation. Instead, that could be done by a standing committee of agency directors. Such a committee would be easier and cheaper to establish, but might be more reluctant to impose formation of coordinating committees than would an independent commission.

5.0 CONCLUSIONS

Each of the three main categories of activities addressing Puget Sound water quality problems requires a somewhat different approach to coordination. Permitting and environmental review are generally well coordinated under existing statutory procedures and informal relationships. Therefore no particular improvements seem necessary at this time. Investigation and research activities suffer from excessive isolation among the agencies concerning research needs, plans, and results. Some significant change, such as the establishment of a research clearinghouse, therefore seems appropriate. With respect to program implementation activities, the need for coordination varies from program to program. Because such needs are highly particular to the problem at hand, no all-embracing institutional fix is appropriate. Rather, program managers should make use of whatever limited devices are appropriate to the problem at hand. Consideration should be given to establishment of a statutory coordination-forcing device, perhaps on an experimental basis.

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2. Wash. Rev. Code secs. 43.21C.010-43.21C.914.
3. Wash. Rev. Code. secs. 90.62.010-90.62.908.
4. Wash. Rev. Code. secs. 80.50.010-80.50.902.
5. Wash. Rev. Code. secs. 90.58.010-90.58.930.
6. This discussion relies heavily on JRB Associates, Evaluation of Five Regulatory Decision-Making Processes Affecting Puget Sound's Water Quality (1983), Ch. 3.
7. 33 U.S.C. sec. 1311.
8. This discussion relies heavily on JRB Associates, Ch. 4.
9. 33 U.S.C. sec. 1344.
10. This discussion relies heavily on JRB Associates, Ch. 6.

PERSONS INTERVIEWED

CORPS OF ENGINEERS

Steve Martin (Commencement Bay permits)
Fred Weinman (works with, suggested by Martin)

DEPARTMENT OF ECOLOGY

Tom Elwell
Glen Fielder
Carol Fleskes
Jim Krull
Bob Monn
Dan Petke
Bob Saunders
Chris Smith
Greg Sorlie
Joan Thomas
Phil Miller

ENVIRONMENTAL PROTECTION AGENCY

Gary O'Neal
John Underwood

DEPARTMENT OF FISHERIES

Russ Cahill

DEPARTMENT OF NATURAL RESOURCES

Dave Jamison
Craig Partridge
Steve Tilley

DEPARTMENT OF SOCIAL AND HEALTH SERVICES

Floyd Frost
Ken Merry
Jim Pluntze

METRO

John Lampe

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

Dr. Chen, NMFS
Howard Harris, MESA

OREGON WATER RESOURCE DEPARTMENT

Chris Wheeler

PIERCE COUNTY HEALTH DEPARTMENT

Derek Sandison
Dr. Bud Nicola

PUGET SOUND COUNCIL OF GOVERNMENTS
Pete Beaulieu

ASSOCIATION OF CITIES
Chuck Mize

SNOHOMISH COUNTY HEALTH DEPARTMENT
Dr. Clarice Hyatt

TACOMA (City)
Mike Price

TACOMA (Port)
Gary Kuczinski